WHAT IS CLAIMED IS:

1. A laser apparatus comprising:

a laser unit configured to emit laser light;

an optical member configured to convert the laser light emitted from said laser unit into parallel light rays; and

an optical fiber having a core with a predetermined cross-sectional shape, and being provided with a fiber end portion,

said fiber end portion having an exterior side configured to receive the light rays from said optical member, and having an interior side being continued to the core of said optical fiber,

the interior side of said fiber end portion being configured to have a given shape with a first area,

the exterior side of said fiber end portion being configured to have substantially an elliptical shape with a second area of which amount is substantially equal to an amount of the first area of said interior side, and

the given shape at the interior side of said fiber end portion changing continuously to the elliptical shape at the exterior side of said fiber end portion.

2. The apparatus of claim 1, wherein said fiber end portion is obtained by pressing or crushing an end portion of said optical fiber such that a degree of the pressing or crushing along a diameter direction of the

optical fiber becomes gradually greater from a position of the interior side toward a position of the exterior side.

3. The apparatus of claim 1, wherein said laser unit has a laser emitting region from which the laser light is emitted, and said optical member is configured such that the laser emitting region is conjugate with a shape the exterior side of said fiber end portion.

4. The apparatus of claim 1, wherein

said laser unit has a laser emitting region from which the laser light is emitted, the laser emitting region having a length of Dslow_LD along a slow axis direction thereof and having a length of Dfast_LD along a fast axis direction thereof,

the laser light emitted from said laser unit has a divergence angle θ slow_LD along the slow axis direction and a divergence angle θ fast_LD along the fast axis direction, and

the elliptical shape of said fiber end portion has its manor axis/minor axis ratio defined as:

Dslow_LD*sin(θ slow_LD)/Dfast_LD*sin(θ fast_LD).

5. The apparatus of claim 1, further comprising a second optical fiber having a core to which a laser activating material is added, said second optical fiber having an end face for receiving the laser light passing through said optical fiber.

6. The apparatus of claim 5, further comprising

an optical device configured to convert the laser light, passing through said optical fiber, into other laser light being matched with a size of the core of said second optical fiber, where the core size of said second optical fiber differs from that of said optical fiber.

7. The apparatus of claim 1, wherein said laser unit includes a plurality of laser unit members, and said optical fiber includes a plurality of optical fiber members having end portions configured to respectively receive light rays from said laser unit members, said apparatus further comprising

a second optical fiber having a core with a given cross-sectional shape, and having an end face for receiving the light rays passing through said optical fiber members, the end face of said second optical fiber being matched with a gathered end face of said optical fiber members from which the light rays are output.

8. The apparatus of claim 7, further comprising an optical device configured to convert the light rays, passing through said optical fiber members, into light being matched with a size of the core of said second optical fiber. where the core size of said second optical fiber differs from the gathered end face of said optical fiber members.

9. A method of handling laser light comprising

converting laser light, emitted from a semiconductor laser device, into parallel light rays; and

inputting the converted parallel light rays into an incidence end face of an optical fiber wherein

said optical fiber includes an end portion having the incidence end face, and

the incidence end face is obtained by changing a cross-section of the end portion into a substantially elliptical shape while keeping an area of the cross-section to be constant.

10. The method of claim 9, further comprising

inputting the laser light, passing through the optical fiber, into a second optical fiber having a core to which a laser activating material is added.

11. The method of claim 10, further comprising

converting the laser light, passing through the optical fiber, into other laser light to be input to the second optical fiber such that the converted other laser light is matched with a core size of the second optical fiber, where the core size of said second optical fiber differs from that of said optical fiber.

12. An image display apparatus for use with a screen comprising:

(a) a laser apparatus including

a laser unit configured to emit laser light, and

a first optical fiber having a core with a

predetermined cross-sectional shape, and being provided with an incidence end face for receiving the laser light wherein the incidence end face is obtained by changing a cross-section of the first optical fiber into a substantially elliptical shape while keeping an area of the cross-section to be constant;

(b) a second optical fiber configured to excite the laser light passing through said first optical fiber;

(c) a modulator configured to spatially modulate the laser light excited by said second optical fiber; and

(d) an optical projection unit configured to receive the laser light being spatially-modulated by said modulator and to output the received spatially-modulated laser light toward the screen.

13. The apparatus of claim 9, wherein said laser apparatus includes a plurality of laser units respectively configured to emit laser light rays, and a plurality of first optical fibers each having a core with a predetermined cross-sectional shape, respectively having one ends for receiving the laser light rays from the laser units, and respectively having other ends for outputting the laser light rays passing through the first optical fibers,

wherein said second optical fiber has a core with a given cross-sectional shape, and having an end face

for receiving the laser light rays passing through said first optical fibers, the end face of said second optical fiber being matched with a gathered end face of the other ends of said first optical fibers from which the laser light rays are output,

wherein said modulator is configured to spatially modulate the laser light passing through said second optical fiber, and

wherein said optical projection unit is configured to output the spatially-modulated laser light toward the screen.